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Information/Education Needs Assessment of Dental Hygienists in Oregon

Description

The primary goal with this project was to create a picture of (a) the current state of access to evidence-based clinical and professional resources and (b) the use of these resources by registered dental hygienists in Oregon. To meet this goal, we identified five subordinate areas of interest to assess in a comprehensive survey of all practicing dental hygienists in Oregon: 1. The extent/use of evidence-based information in clinical practice.

2. The level of access to evidence-based information across different practice settings.

3. The level of access to business planning/best practices resources and training for limited access permit (LAP) hygienists.

4. Information-seeking behaviors of dental hygienists in relation to clinical practice and professional development.

5. The need for continuing education opportunities related to evidence-based practice and successful LAP practice.

Disciplines

Dentistry | Library and Information Science

Comments

This is the final report for a project funded by an Assessment and Planning Award from the National Network of Libraries of Medicine, Pacific Northwest Region.

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Planning Award Final Report
February 26, 2010

Information/Education Needs Assessment of Dental Hygienists in Oregon

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Overview

Access to adequate dental care is a growing issue for all populations, but especially for those in rural or traditionally underserved populations in Oregon. As a means of addressing this access to care issue, Oregon has been on the forefront of expanding scope of practice guidelines for dental hygienists, which is most clearly seen in the role of Limited Access Permit (LAP) hygienists (Battrell et al., 2008). The primary benefit to the LAP model is that it allows hygienists to practice without the supervision of a dentist, which is essential in providing care for patients who are unable to access a dental office for treatment. For the LAP model to be successful, it is vital that hygienists receive the necessary training and access to resources that will enable them to achieve professional independence and provide the highest level of care.

In recent years, the American Dental Hygiene Association (ADHA) has communicated the necessity for dental hygiene education, practice and research to incorporate evidence-based decision-making (Forrest & Miller, 2001). A key component of evidence-based practice is the ability to search for, and access, evidence-based research to help answer clinical questions and facilitate patient care.

In Oregon, there is currently an incomplete understanding of the evidence-based information, continuing education and training resources that *all* dental hygienists (and LAP hygienists in particular) need to be successful, and how those resources can best be delivered to hygienists. A more complete understanding of these issues will shape outreach efforts within the professional community and will contribute to ensuring that Oregon remains a model for the role hygienists can play in addressing access to care issues.

Our primary goal with this project was to create a picture of (a) the current state of access to evidence-based clinical and professional resources and (b) the use of these resources by registered dental hygienists in Oregon. To meet this goal, we identified five subordinate areas of interest to assess in a comprehensive survey of all practicing dental hygienists in Oregon:

1. The extent/use of evidence-based information in clinical practice.
2. The level of access to evidence-based information across different practice settings.
3. The level of access to business planning/best practices resources and training for limited access permit (LAP) hygienists.
4. Information-seeking behaviors of dental hygienists in relation to clinical practice and professional development.
5. The need for continuing education opportunities related to evidence-based practice and successful LAP practice.

Though we hoped to consider specifically the needs of LAP hygienists, we felt that this project presented an ideal opportunity to provide a broad understanding of these issues for all dental hygienists in Oregon. We hope that this broader information will not only be useful to the professional community at large in establishing general outreach priorities, but that it will also provide a valuable point of comparison when considering LAP hygienists (who comprise an admittedly small percentage of all hygienists in Oregon).

Methodology

Questionnaire Development

Our survey instrument (**Appendix A**) was developed through a partnership between the project lead, a librarian at Pacific University, and the co-investigator, a faculty member from the Pacific University School of Dental Health Science. The instrument was adapted from the questionnaire utilized in the NNLM/PNR-funded project “Information Needs Assessment of Speech Language Pathologists and Audiologists in Idaho” (subsequently published as “Results of an assessment of information needs among speech-language pathologists and audiologists in Idaho”; see Guo, Bain & Willer, 2008). Questionnaire items were primarily quantitative in nature, though some qualitative items were included. A staff member at the Pacific University dental clinic reviewed the instrument, but no formal pilot testing was conducted.

The survey instrument was designed for administration both in paper booklet format and online using SurveyMonkey.

Survey Distribution

Population Definition/Derivation

Our primary population of interest was dental hygienists currently practicing in Oregon (or close enough to Oregon to take advantage of in-state education opportunities).

For our sampling frames, we received lists of potential participants from two sources. The first was a list of all dental hygienists licensed in the state of Oregon (ORDH) (current as of August 2009). The second was a list of all Oregon Dental Hygiene Association (ODHA) members (current as of June 2009). The two lists were not combined because the ODHA list included some email addresses and we decided to administer an online survey to ODHA members with email addresses and a postal survey to the remaining ODHA members and to the ORDH list (primarily as a fiscal efficiency). We also wanted to preserve the ability to discern possible differences between ODHA and non-ODHA member responses (though this distinction was outside the scope of our primary areas of interest in this project). In order to insure that individuals were not included in both the ODHA and ORDH survey groups, the following procedure was followed:

- The ORDH and ODHA lists were compared
 - Names that appeared on both lists were removed from the ORDH list
 - Names were confirmed using mailing addresses
 - In 40 cases, addresses did not match, but names were removed from RDH list. (The likelihood that the names represented the same people outweighed the possibility that they were unique individuals – making it more likely that if they were included on both lists, the same individual would be counted in both samples.)

Because our initial lists were likely to include individuals who did not fit our desired profile, we applied several pre-sampling filters/exclusionary criteria in an effort to create the most relevant population:

- ORDH and ODHA lists were compared; ODHA members who were not on the ORDH list were removed.

- For the ORDH list, individuals who were indicated as working “Out of State” *and* who had a mailing addressing that was *not* in Oregon (OR), Washington (WA), Idaho (ID) or California (CA) were removed. (While it is possible that RDHs who work or live in Oregon border states could benefit from continuing education/information resources in Oregon, it is unlikely there would be a positive impact for RDHs further away).
- For individuals on the ORDH list who were indicated as working in an Oregon county, but who had a mailing address outside of OR, WA, ID or CA, a work mailing address was substituted and they were not excluded from the population.
- For the ODHA list, individuals who had a mailing address outside of OR, WA, ID or CA, and who were indicated as working “Out of State” on the RDH list, were removed from the ODHA list.

After these exclusionary criteria were applied, there were 408 individuals on the ODHA member list and 2,951 individuals on the ORDH list.

Sampling Procedures

Due to the small population size, we determined that we would survey all 408 individuals on the ODHA member list.

For individuals on the ORDH list, a sample was derived using the following procedure:

- A stratified sample was used in order to achieve representation in the sample from each Oregon county represented on the Oregon RDH list.
- The representative percentage of each county in the RDH list was calculated by this equation:
Number of individuals in X county/2,951.
- Because it was not practical to survey all 2,951 individuals on the list, we chose to select a sample of 1,100 individuals (in hopes of receiving enough responses to approximate a margin of error of +/- 3 at a 95% c.i.).
- To calculate the number for each stratum, the representative percentage for each county was multiplied by 1,100. Results were rounded to the nearest whole number.
- Using a random sequence generator (random.org) based on a uniform distribution, a random sequence was created for each stratum and pasted into the spreadsheet next to the names for the stratum (thus assigning a random place in the sequence to each individual in the strata).
- The stratum was then sorted by the random sequence column, and the appropriate number of individuals was selected from the beginning of the sorted list.
- The resulting sample contained 1,099 individuals (due to rounding in the percentage calculations).

Sample Sizes

- 408 ODHA members were surveyed; 283 were sent the survey online and 125 were sent the survey via postal mail.
- 1,099 individuals from the ORDH list were sent the survey via postal mail.
- Combined sample size: 1,507 (283 sent online; 1,224 sent via post)

Possible sources of error in sample derivation:

The removal of duplicates was performed manually due to formatting inconsistencies in the ODHA and OR RDH lists; during manual examination/manipulation of lists, it is possible that errors occurred – either the removal of eligible individuals or the non-removal of ineligible individuals.

Additional formatting inconsistencies in individuals' names and possible errors in reported mailing addresses may have caused some eligible individuals to be improperly excluded from the sampling process.

Survey Distribution

- For those ODHA members with email addresses, a link to the online survey (delivered via SurveyMonkey) was sent via email.
 - A reminder email was sent approximately 10 days later to non-respondents.
 - A reminder letter and copy of the postal survey was sent to all remaining non-respondents approximately two weeks following the email reminder.
- For ODHA members without an email address, and for all individuals on the ORDH list, a survey and cover letter (with postage-paid return envelope) were sent via postal mail. The letter included the URL for the online version of the survey.
 - A reminder postcard was mailed approximately two weeks later to non-respondents (postal surveys were coded for this purpose and for preserving the ODHA/non-ODHA distinction). For those who may have misplaced the original mailing, instructions were included for the option of completing the survey online, or to contact the project lead for another copy of the survey.
- To the extent deemed practical to still achieve a timely response, mailed surveys which were returned with a forwarding address were re-sent under the new address.

Response Rate

We received 420 responses via postal mail and 85 responses online, for a total response of 505. (Nineteen responses were removed from the initial response set of 524 because the respondents had failed to complete critical portions of the survey). This gave us an overall response rate of 33.5%.

Responses were fairly evenly split between ODHA members and non-ODHA members from the ORDH list. We received 312 responses from non-ODHA members and 193 responses from ODHA members. (These figures are +/- up to 7 responses which were not identifiable as being from either group because they came through the URL that was distributed in follow-up mailings).

Summary of Key Results

General Demographics of Respondents

Professional Demographics

- An overwhelming number of respondents (380/474 = 80.2%) indicated working in a private practice setting. (For the purposes of this survey, responses indicating work in group practices, managed care, HMOs and DMOs were included in the “private practice” category). Work in a college/university (n=32) or public health setting (n=15) were the next highest groupings, along with respondents who indicated working in multiple settings (n=21).
- The majority of respondents serve primarily middle-class patients (290/452 = 64.2%).
- Of the respondents who reported a work state, 88.4% (426/482) indicated working either solely or partly in Oregon (other common responses included Washington, Idaho, California, not currently working).
- 45.7% (220/481) of respondents hold an associate’s degree; 44.7% (215/481) hold a bachelor’s degree.
- 51.3% (238/464) of respondents indicated a desire to attain a degree higher than they currently hold.
- Respondents were primarily female – 98.1% (474/483).
- There was no clear majority using a 10-year span to indicate age; however, 61.8% (299/484) of respondents who indicated an age were between 40-59 years of age.

Computer/Internet Usage

- 69.0% (340/493) of respondents indicated that they were “intermediate” computer users.
- 71.9% (361/502) indicated that they had Internet access available at both work and home.
- 47.3% (232/490) of respondents reported that they “always” have access to the Internet at work when they need it.
- Respondents were asked if they “use a computer to access information to inform your clinical practice.” 44.2% (219/495) indicated that they did so at both home and work, while 18-19% indicated using a computer for this purpose either solely at home (18.4%) or solely at work (18.8%)
- The vast majority of respondents (408/493 = 82.8%) live close to a location with publicly accessible Internet access. The most commonly cited “close” location was a library (326/416 = 78.4%). (“Close” is, of course, a subjective determination – one respondent indicated the library was 25 miles away).

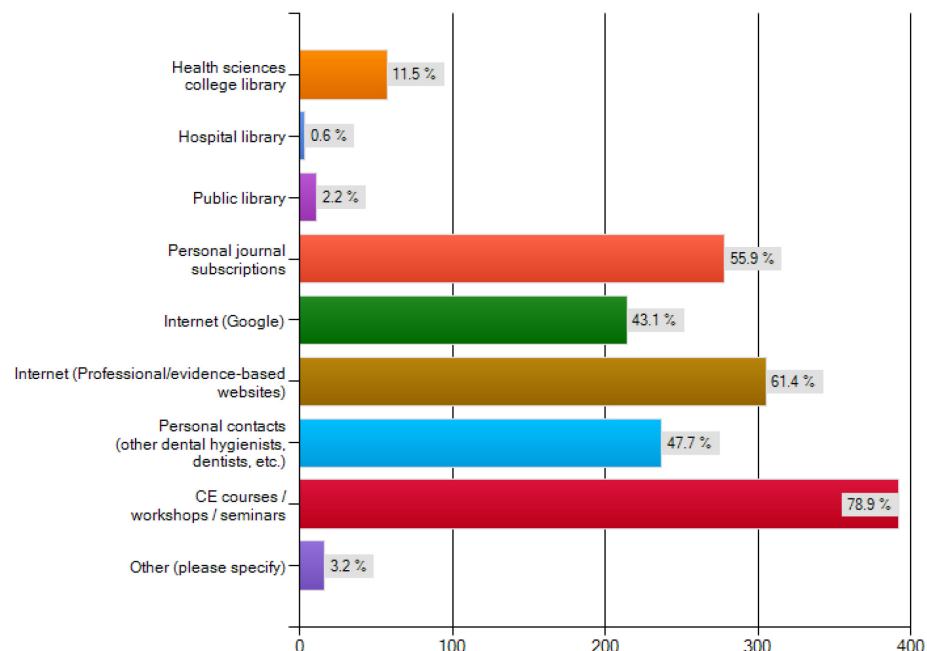
Accessibility/Use of Information Resources

Respondents were asked questions about their information-seeking and use behaviors related to their practice as dental hygienists.

- When looking for information to inform their clinical practice, 78.3% (353/451) indicated that their “Most Frequent” behavior was looking for information on their own (other options included: asking a colleague, contacting an information specialist/librarian, or “other”).
- Respondents indicated that, during the past five years, they had most frequently needed to find information for (a) patient care (428/496 = 86.3%) and (b) personal interest/furthering knowledge (441/496 = 88.95).
- While slightly over 86% of respondents had indicated needing to find information for patient care, **59.6% of respondents indicated that they looked “for evidence-based information to inform [their] patient care” either *sometimes* (200/488), *rarely* (78/488) or *never* (13/488).** Only 40.4% (197/488) indicated that they *often* or *always* do this.
- Respondents indicated a variety of sources used to locate evidence-based information to inform patient care. (See Figure 1) CE courses/workshops/seminars were clearly a heavily used source.

FIGURE 1.

When you are looking for evidence-based information to inform patient care, where do you turn?
(Choose up to THREE that you consider most helpful)



- **A dominant majority of respondents indicated that they *Never* use online databases (e.g. MEDLINE, CINAHL, Cochrane, etc.) to find work-related (patient care, business practices, professional development, etc) information.** This held true across a variety of potential access

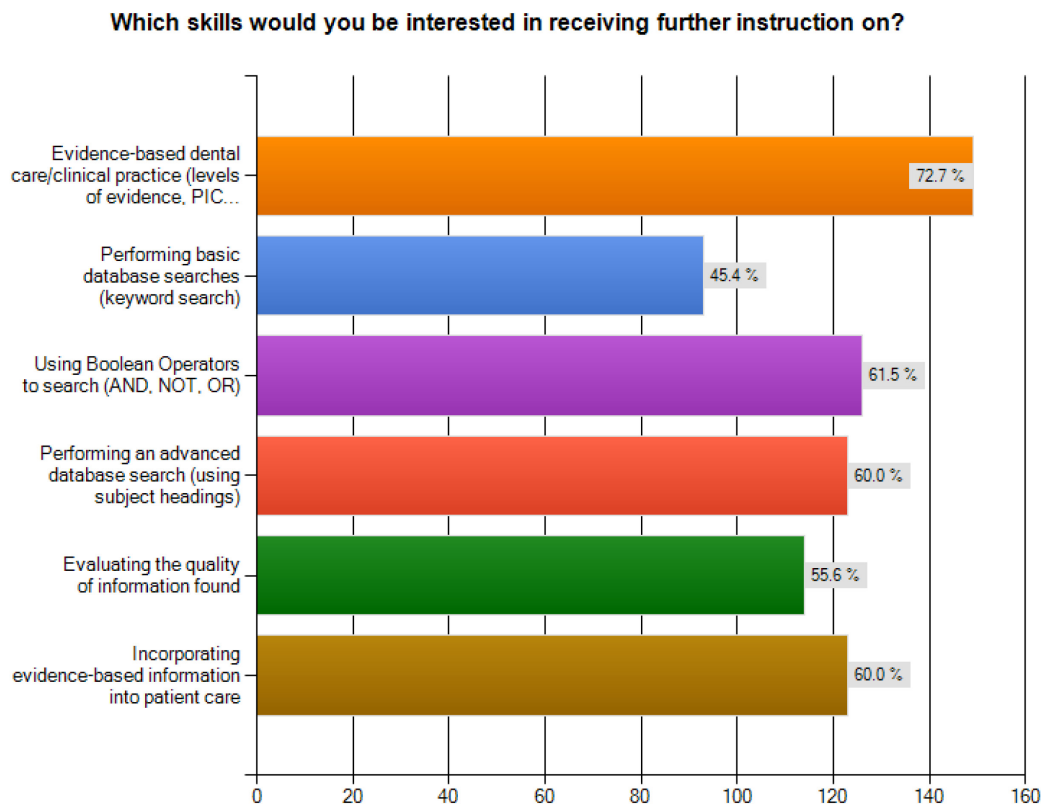
points – personal subscriptions (63.4% - 310/489), employment subscriptions (72.4% - 352/486), college/university libraries (60.8% - 298/490), or public libraries (72.0% - 348/483).

- In a related question, respondents were asked about which resources they would like to receive further instruction on using. 69.1% (134/194) of respondents indicated interest in learning about accessing online databases via personal subscriptions; 47.4% (92/194) indicated interest in access via employment subscriptions; 55.7% (108/194) indicated interest in access via a college/university library. Interest was also expressed in learning to utilize a variety of other websites (professional organizations (36.1% - 70/194), dental company (21.1% - 41/194), consumer health (33.0% - 64/194) and search engines (18.0% - 35/194)).
- Respondents were asked to indicate their perceived level of access (ranging from 1=easy access to 5=no access) to three categories of resources: evidence-based information for patient care; professional development materials; and business practice/management information. **For each resource category, “average access” was identified as the most common level of access.** Fewer than 20% of respondents indicated that they had “Easy access to what I need” for any of the three types of information. (Higher percentages reported having “Mostly easy access”: 35.8% (172/480) for evidence-based information, 33.3% (160/480) for professional development information, and 23.1% (104/451) for business practice/management information). **Of the three categories of information, business practice/management information had the lowest percentages of respondents indicating either “Easy” or “Mostly easy” access.**

Satisfaction with Search Process/Use of Information

- In regards to search processes, respondents were asked about their perception of their ability to find work-related information. 69.4% (329/474) indicated that they were “Average (It takes a while, but I find what I need).” **Only 20.7% (98/474) reported feeling that they were “Efficient (I find what I need quickly).”**
- A majority of respondents indicated that they were either “somewhat successful or “very successful” when analyzing information they had found and applying it to either patient care (73.4% - 359/489) or their own professional development (64.1% - 313/488). However, only 43.5% (202/464) felt they were “somewhat” or “very” successful when analyzing and applying information to business practice/management decisions.
- **In a related question, 55.6% (267/480) of respondents felt they were either “expert” or had “sufficient knowledge/experience” in incorporating evidence-based information into patient care.**
- Though fewer than half of all respondents answered a question about general searching/evidence-based skills they would be interested in learning more about, the majority who *did* answer (149/205 = 72.7%) indicated interest in learning more about “Evidence-based dental care/clinical practice (levels of evidence, PICO questions, etc).” Other areas of interest are indicated in Figure 2.

FIGURE 2.



Continuing Education

In addition to the questions addressed in the previous section regarding interest in training/learning more, respondents were also asked general questions related to participating in continuing education opportunities.

- In regards to favored training methods, both one-on-one assistance and taking classes/workshops in person were selected by the most respondents as being “Very Appealing”. However, the combination of responses in the “Very Appealing” and “Somewhat Appealing” categories indicated other methods with broad appeal:
 - Taking a class or workshop online was appealing to 61.6% (295/479) of respondents.
 - Using a self-paced online tutorial was appealing to 58.1% (277/477) of respondents.
 - Taking a class or workshop via video conference was appealing to 43.6% (208/477) of respondents.
 - Reading a training guide or manual was appealing to 44.8% (210/469) of respondents.
- 59.2% of respondents (287/485) would be able to dedicate 8 hours at one time to attend a hands-on training session; over 95% indicated they could devote at least 2 hours at a time to a hands-on training session.
- 24.5% of respondents (119/485) reported that it would be “difficult” or “very difficult” for them to attend a CE course in a face-to-face setting.

- Of the 119 respondents, 93 had provided the Oregon county in which they work. Of those 93, 61 (65.6%) worked in a county *other* than Multnomah, Washington, Clackamas or Marion.
- Of the 451 respondents who provided the average distance that they drive to attend face-to-face CE courses (respondent-provided ranges were averaged individually), the average distance traveled was 68 miles.
- **72.6% of respondents (339/467) indicated they would be interested in participating in CE courses via video-conferencing if the technology was available.**

LAP Hygienists

Responses from LAP hygienists were included in the general response set described above. Here, the LAP responses are broken out from that set and examined as a subset.

- Thirty-seven (37) respondents identified themselves as LAP hygienists. Of these 37, 14 (42.4%) reported working in private practice and 3 reporting working in both private practice and public health. Seven respondents (21.2%) reported working solely in public health – a significantly higher percentage than among respondents in general.
- When “looking for evidence-based information to inform patient care”, LAP hygienists selected the *Internet (professional/evidence-based sites)* as a favorite source (73.0%), followed by the favorite source indicated by respondents in general (*CE courses/workshops/seminars*).
- **When asked about which resources they would like to receive further instruction on using, LAP hygienists had similar responses to general respondents.** 71.4% (15/21) of respondents indicated interest in learning about accessing online databases via personal subscriptions; 42.9% (9/21) indicated interest in access via employment subscriptions; 52.4% (11/21) indicated interest in access via a college/university library.
- LAP hygienists indicated a slightly different perception of level of success when analyzing and applying information they had found to business practice/management decisions. 50% (18/37) felt they had some level of success in this regard (as opposed to 43.5% of hygienists in general).
- Similarly to general respondents, the majority of LAP hygienists indicated that they had “average” access to evidence-based information, professional development materials, and business practice/management information. 20% or fewer of LAP hygienists indicated “easy” access to these categories of information. (If respondents indicating “mostly easy” access are included, that percentage is over 50% for evidence-based and professional development information. **However, even with “mostly easy” access included, the total for the two categories still only reaches 32.4% for business practice information**).
- The majority of LAP hygienists who answered the question regarding skills they would be interesting in receiving instruction on (15/22 = 68.2%) indicated interest in learning more about “Evidence-based dental care/clinical practice (levels of evidence, PICO questions, etc).” Other areas of interest including using Boolean operators in searching (63.6%) and incorporating evidence-based information into patient care (54.5%).

- 89.2% of LAP hygienists (33/37) indicated they would be interested in participating in CE courses via video-conferencing if the technology was available (72.6% of general respondents indicated interest).

The survey contained two questions specific to LAP hygienists:

- When asked “Have you received training on the best practices for receiving insurance reimbursement for your services?,” 91.7% of LAP hygienists (33/36) answered *No*.
- When asked “How successful have you been in seeking and receiving insurance reimbursement?,” 63.3% of LAP hygienists (19/30) replied with *Unsuccessful* (26.7% indicated being *Somewhat successful* and 10.0% *Very successful*).

Discussion

While our survey didn’t achieve as high a response rate as we had hoped to achieve, we were pleased with the response and believe that the results provide a useful snapshot of information-seeking and use behaviors (and related needs) of registered dental hygienists in Oregon.

Extent/use of evidence-based information in clinical practice

The use of evidence-based information to inform patient care is clearly not pervasive, with only 40% of respondents indicating that they “often” or “always” look for evidence-based information for this purpose. This finding is supported by the majority of respondents (over 60%) who indicated that they never use the primary sources of evidence-based information – online databases.

A partial explanation for this lack of usage may be lack of easy/convenient access to these resources. Fewer than 20% of respondents indicated that they have easy access to evidence-based information to inform patient care, even though the majority of respondents have access to a computer at work. If respondents who indicated they have “mostly easy” access to these resources are included, the figure rises to approximately 53%. With ease of access/use often a consideration in utilization of resources, it is possible that anything less than “easy” or “mostly easy” access may provide a deterrent to use for the remaining 47% of respondents.

The overwhelming use of CE courses/workshops/seminars as access points for evidence-based information to inform patient care suggests that this could be a useful (established) way to continue to deliver information to this population.

When they have access to evidence-based information, dental hygienists in the survey were roughly split as to their perceived skill at using that information. Slightly more than 50% of the respondents felt they were either expert or had sufficient knowledge/experience to incorporate evidence-based information into patient care (44% felt they had some knowledge/experience or no knowledge/experience).

Unfortunately, it is difficult to draw meaningful conclusions about the level of access to evidence-based information across different practice settings, as the vast majority of respondents (80%) work in private practice (leaving very small comparison groups from other practice settings).

Information-seeking behaviors of dental hygienists in relation to clinical practice and professional development

Information needs were generally varied, though looking for information to inform patient care and to contribute to personal knowledge were the most commonly cited needs.

Respondents in the study reported independent information-seeking behaviors; asking a colleague for help was the next most common practice, while consulting an information professional was the least frequent practice.

When looking for information to inform patient care, CE courses/workshops/seminars were cited as the most common source of information (with almost 80% of respondents indicating use), followed by professional/evidence-based websites and personal journal subscriptions. Conversely, the majority of respondents indicated that they *never* use online databases to find work-related (patient care, business practices, professional development) information. (Many respondents were, however, interested in learning to use these databases).

Nearly 70% of dental hygienists in the study reported that they were “average” at finding work-related information (as opposed to “efficient – I find what I need quickly”). Though they didn’t profess efficiency in locating information, they did express confidence in their ability to analyze and apply information they have found to either patient care or personal professional development. There was less confidence reported in being able to analyze and apply information to business practice/management decisions.

A primary area of need for dental hygienists appears to center around the use of online databases to locate evidence-based information, as well as a broader understanding of the basic principles of evidence-based practice. In addition, access to business practice/management information was only average (or worse) for the majority of respondents, so addressing this (in tandem with help analyzing and applying said information) should also be considered an area of potential need.

Access to business planning/best practice resources and education for LAP hygienists

In general, LAP hygienists in the survey showed similar tendencies to the general respondent set, with potentially meaningful differences highlighted in the results above.

A critical element in the ability of LAP hygienists to practice successfully is practice management. Specifically, LAP hygienists must know how to effectively seek (and receive) insurance reimbursement. Without this ability, true independent practice (and the capacity to go wherever care is needed) becomes fiscally difficult.

The apparent lack of training for LAP hygienists in this area (and lack of success at seeking/receiving reimbursement), demonstrates a clear area of need and opportunity for provision of resources and education. The establishment of additional educational opportunities in this area would benefit existing LAP hygienists, and the knowledge that this type of support exists could encourage other registered dental hygienists who are considering obtaining a LAP.

Limitations to results

Our primary population of interest was practicing registered dental hygienists who either live or work in Oregon. Though we tried to limit our survey sample to participants who fit this definition, our response set includes a limited number of hygienists who do not fall into that category – even after applying what we felt were reasonable exclusionary criteria. For that reason, though the vast majority of respondents (approximately 90%) were in our population of interest, we cannot say that our result set is entirely composed of practicing Oregon registered dental hygienists (negligible numbers were retired or not currently employed; a larger number were from Oregon border states). We do, however, feel confident in stating that our results provide a reasonable estimate of the current practice/needs of Oregon hygienists. We feel comfortable using the complete result set, without removing additional respondents, because the development of continuing education opportunities has the potential to benefit hygienists in Oregon border states as well.

Statistical significance was not computed; measures of significance would need to be computed on an item-by-item basis, due in part to variation in question type and response rates across the questionnaire. For the overall purposes of this project, we are satisfied with assessing practical (rather than statistical) significance. However, were statistical analysis to be performed, response bias, dual questionnaire modes (postal/online) and ODHA membership are among the areas that should be considered in assessing the statistical significance of results.

Areas for further study

In Figure 1 (page 6), sources of information used to inform evidence-based practice are listed. Given the number of respondents who indicated using either personal journal subscriptions, Internet search engines, or “professional/evidence-based” websites, it would be instructive to learn more specifically which resources are being included in those categories (i.e. *which* specific journals and websites are being used/counted as evidence-based sources of information).

On a related topic, it would be useful to understand *how* dental hygienists define evidence-based practice. While the concept of evidence-based practice was addressed in this project, respondents were not asked to explain their understanding of the principles/processes of evidence-based patient care.

Taken together, these two pieces of information would be important correlates to respondents’ perceptions of their use of evidence-based information, and would help either confirm their perceptions or point to areas for further education/support.

Conclusions

Though there is certainly knowledge, and use, of evidence-based information in the hygienist community, there is clearly room for additional growth. Overall, several areas of need for registered dental hygienists in Oregon were identified:

- There is uneven use of evidence-based information to inform patient care.
- There is also uneven *access* to evidence-based information that could be used to inform patient care.
- There is a desire among hygienists to learn more about evidence-based practice in general, and how to use/access evidence-based databases (and other sources of information).

- There is a need for additional training/access to resources related to business/practice management for all hygienists.
- There is a specific need for training/education for LAP hygienists regarding seeking and receiving insurance reimbursements (as well as general business/practice management topics).

In general, though face-to-face modes of instruction were rated highest, hygienists indicated openness to receiving training via video conference, and were also open to online courses and online tutorials. Because most hygienists reported having Internet access at either work or home (or both), and a large number live close to a library with publicly accessible Internet, exploring options for distance delivery of training (in addition to online provision of resources) seems logical.

Looking ahead

Given that there is a need, the next steps will involve identifying the best ways to meet that need. This could include:

- An inventory of currently available information resources.
- The creation of online pathfinders/tutorials/promotional materials to aid hygienists in accessing currently available resources.
- An assessment of evidence-based/business resources which are not currently available, along with the cost of providing those resources.
- The creation of curriculum related to evidence-based practice and business/practice management for all hygienists.
- The creation of curriculum for LAP hygienists related to insurance reimbursement and related business practices.
- Exploration of technology options (and costs) and potential hosting partners throughout the state for training sessions delivered via video conference or online.
- Collaborating with ODHA, Pacific University School of Dental Health Science and others to identify potential trainers.

Final Thoughts

We feel this assessment/planning project was a success for three primary reasons. First, we received a higher response rate than expected from the dental hygiene community in Oregon, which indicates to us a promising level of interest in the topics addressed. Second, the results of the project have provided information which has the potential to not only guide the creation of individual continuing education opportunities in the state of Oregon, but should also be helpful to college/university educators in preparing dental hygienists for practice (particularly for practice in areas where access to care is limited). Finally, we believe that the results of this project will provide the impetus for additional education/training for LAP hygienists, which should help make LAP practice a more attractive prospect – potentially leading to more LAP hygienists in Oregon and greater access to care.

The overarching goal for any outreach efforts that result from this needs assessment should be the development of effective life-long learners in dental hygiene practice. Training dental hygienists both in higher education and professional development settings to effectively seek, access and use evidence-based information in patient care (and in practice management) is a vital piece of this development. In order for life-long learning to occur, however, continued easy access to high quality information is an absolute necessity. Without this access, skills and abilities cannot be put to use and professional development (improving practice, expanding care through an LAP, seeking a higher degree) may be

discouraged. An environment that is conducive to life-long learning, improved practice and expanded access to care, is one in which the temporary access that is granted to dental hygiene students is expanded to include all practicing hygienists. This is the environment that outreach efforts should seek to create, and we hope this project helps demonstrate the need for those efforts.

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